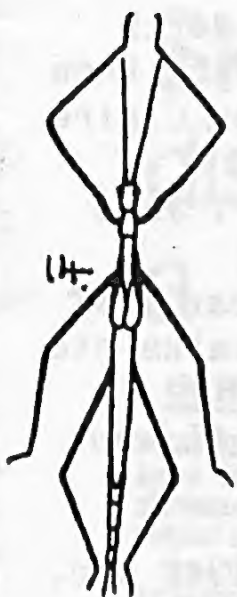


Field Naturalists' Club

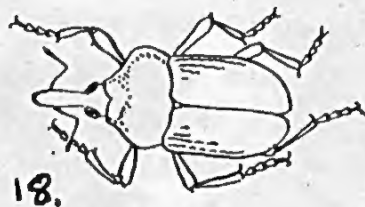
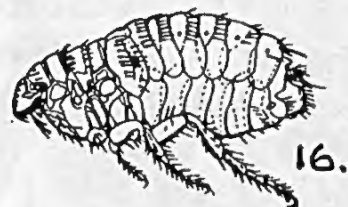
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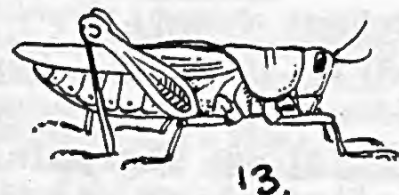
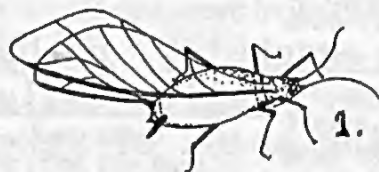
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No Millennium Bug here!
But what have we got?
And what's lurking in the shade?

DIARY DATES

Fri 4th Feb 2000. Meeting. *Sea and Shore Birds.* Speaker Ian Ashton, BOCA, Ballarat.

Sun 6th Feb. Excursion. *Queenscliff and Point Longsdale.* Leader Clarrie Handreck, Marine Biologist. Travel arrangements etc to be discussed at meeting.

Thur 10th Feb. Meeting to prepare club submission concerning Western District RFA. Greg and Genny's, , 4-00pm.

Thur 17th Feb. Mid-month excursion. *Lake Burrumbeet*, North Shore Reserve, VICROADS 58 C9, go through the Caravan Park then turn left. 5-00pm, bring meal, but not Bar-B-Q. Leader Claire Dalman.

Tues 22nd Feb. Committee Meeting. John and Elaine's, , 7-30pm

Fri 3rd Mar. Meeting. *AGM and members' night - The Year That Was.* Presentation of slides, photographs, specimens, talks etc by club members relating to our activities in 1999.

Sun 5th Mar. Excursion. *Aboriginal Caves at Mt Langi Ghiran.*

DECEMBER MEETING POINTS

*1 Public meeting concerning Big Hill, Stawell, 13th Dec. Forms available for request to be heard, Department of Infrastructure. FNCB has forwarded a submission. *2 VFNCA confirmed that FNCB will host spring 2002 campout. *3 Down to Earth - Confest. *4 Information meeting concerning North Gardens Wetland. Thur 9th, 7-30pm, Ballarat Horticulture Centre. *5 CHOARM (Central Highlands Older Adults Recreation Movement) contacted the club concerning activities, a reply was posted with a syllabus card and a christmas card. *6 Marine Molluscs of Victoria, still available at the bargain price of \$10/copy. *7 Flora of Victoria, Vol 4, (\$260), has been ordered, will be available in our library soon.

FIELD REPORTS

Echidna, towards top of Mt Warrenheip, Margaret Thomas. Rufous (Nankeen) night heron, Lake Wendouree, mid November, Kevin Andrews. Remains of nest and eggshells, probably duck, November, near Meredith, Lyndsay Fink. Yellow tailed black cockatoos stripping foliage and eating seeds of Hakea salicifolia; stood on a black-backed snake when walking the dog - it didn't even bother moving! November, Mt Egerton, Paul Norquay. 30 clutches of cygnets (90+ total). Other birds with young:- musk duck, grey teal, moorhen, swamphen, white ibis and little pied cormorant nesting in willows near BHS boatshed, Lake Wendouree, November, John Gregurke. 10 cm skink, dropped pl

tail, which wiggled for about 5 minutes! Early December, Mt Helen, Frank Harrap. Young great crested grebe, St Georges Lake, Creswick, (unusual for this locale). Also nankeen night heron with half mature plumage above, juvenile below, mid November, Ken McDonnell. 4 skinks came into doll's house, Del McDonnell. Banded swans not co-operative in showing their bands! Peter Billings. ---- Peter was advised to take a loaf of brown bread!

Skeleton discovery a first

By **RODNEY CHESTER**

AUSTRALIAN researchers have found the near-perfect skeleton of a meat-eating marsupial near Mt Isa.

The bones are thought to be 17 million years old.

The astounding find was made almost by accident.

Australian Museum director Michael Archer said researchers had spent days uncovering a pile of bones belonging to an extinct plant-eating animal in an old cave near Riversleigh, 250km north-west of Mt Isa.

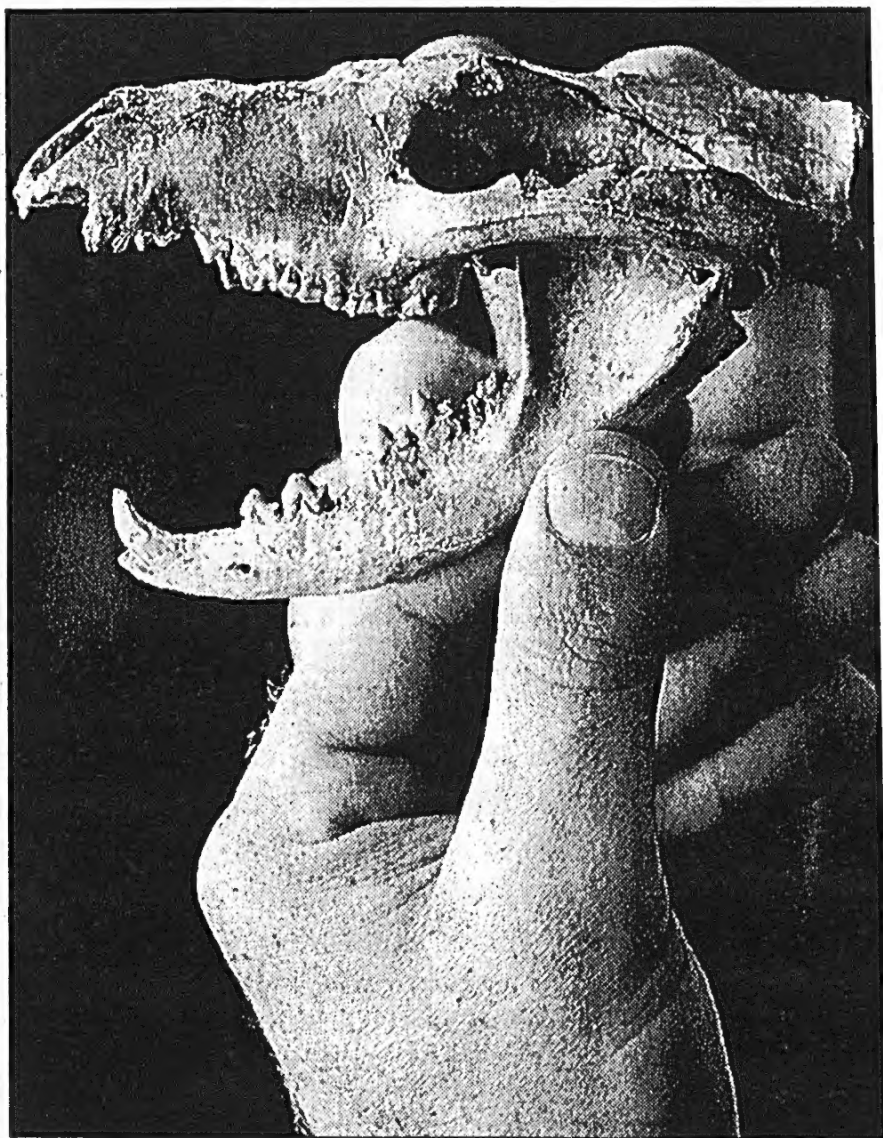
When an annoyed researcher hit a nearby rock with his sledgehammer, he uncovered part of the skull of the new specimen.

"This thylacine, which had fallen into the cave perhaps attracted by the smell of the rotting bodies, had simply expired," Dr Archer said.

"It's put its head down and simply gone for a little 17-million-year sleep.

"Below the head was the skeleton — the arms, the backbone, the ribs, the feet. It is a magnificent specimen."

Apart from its modern ancestor, the recently extinct Tasmanian tiger, this fox-sized thylacine skeleton is the only complete fossil from a family of carnivores that once



Breakthrough: the skull of the ancient thylacine.

covered Australia and Papua New Guinea.

Dr Stephen Wroe, of the University of New South Wales, made the discovery as part of his doctoral research on the evolution of Australian carnivores.

He said the fossil helped disprove the theory that early large Australian carnivores were all reptiles.

In the latest edition of

Scientific American, Dr Wroe said Australia was once home to ferocious carnivorous marsupial wolves and lions, rat-kangaroos and a 500kg thunder bird, up to 3.5m tall with a head the size of a horse's.

The skeleton, which is being restored at the University of NSW, will be displayed in Queensland next year.

Researchers now have identified at least nine separate species of thylacine.

Six Million Years of Volcanoes in the Ballarat area

December's speaker and excursion leader was Dr. Julian Hollis, a freelance geologist passionate about vulcanology and with a special interest in the recent volcanic history of central western Victoria.

Friday evening's lecture began with a short excerpt from a video showing Stromboli erupting to give us an idea of the type of eruptions characteristic of this area. Pent-up gases escape spasmodically with explosions blowing out incandescent clots of lava at 1100°C, which form "bombs" and scoria. More intense activity will produce lava flows of varying composition, with hotter and more violent eruptions producing rocks richer in silica such as Hanging Rock and Camel's Hump.

In our part of Victoria, scoria and basalt flows may be up to 100m thick, with activity going back 190 million years when the Gondwana break-up began. Dr. Hollis has identified 425 eruption centres in an area bounded by Geelong, Kilmore, Castlemaine and Trawalla.

In an eruption, magma is brought to the surface often from great depths in the earth's mantle; fragments of pre-existing rocks become embedded in the magma and are called xenoliths. They provide clues to the nature of the deeper parts of the crust and mantle. Slices of rock so thin they can transmit light are studied under the polarising microscope - crystal shape and optical properties such as interference colours and extinction angles enable the minerals to be identified; these may include olivine, feldspars, red garnet, spinel and members of the pyroxene and amphibole groups.

Magma brought to the surface cools very quickly and is very fine-grained, such as basalt and trachyte; magma injected between layers of rocks cools slowly, giving the crystals time to grow and producing coarse grained rocks such as granite and syenite. If these crystals later become involved in further eruptions and come to the surface, they are found embedded in lava flows. Such xenoliths bearing a resemblance to rocks in Antarctica can be found in volcanoes between Mt. Beckworth and Newlyn.

However the scoria cones typical of our area weather rapidly into soil; if this soil is concentrated and panned the heavy stable minerals such as garnet, zircon, ruby and sapphire can be found. Knowing the pressures at which these minerals form can tell us the depth from which they came.

Dr. Hollis illustrated these points with slides of rocks in thin sections, zircons of various colours (they have been mistaken for diamonds sometimes!), xenoliths, and some fascinating samples of the rocks he's found.

Zircons contain radioactive minerals whose decay processes can be used to determine the age of the lava flows in which they're found - a flow at Dunnstown is 4 m.y., whereas Mts. Buninyong, Warrenheip and Franklin are less than 1 m.y. and only half a million years for Wombat Hill in Daylesford.

After meeting Dr. Hollis in Trentham on the Sunday we were taken to his home where he has a private collection of rocks, minerals and fossils from around the world, organised in geological ages. Spectacular ammonites, plants, shells and bones complemented a great variety of igneous, sedimentary and metamorphic rocks.

The first field site was Blue Mountain, 870m high and the site of a series of violent eruptions over a 200,000 year period 6 m.y. ago. Composed of a greenish trachyte, it contains a different suite of zircons for each eruption.. The rock outcrops exhibited a distinctive ESE - WNW jointing pattern, parallel to the trend of the Greendale Fault whose instability caused tension in the newly cooled lava.

With the day warming up we moved on to Trentham Falls where the Coliban River plunges over a 30m cliff of columnar basalt dated at 5 m.y. This flow followed and buried an ancient river valley whose loose sediments are now being eroded by the spray; the subsequent undercutting has caused the unstable basalt columns to fall, most recently in September '99 when 40 tonnes fell, resulting in closure of much of the reserve to the public. A further 1200 tonnes is estimated by Dr. Hollis to be loose.

Three distinct lava flows have been identified here, the layers distinguished by their composition and the soils which developed on each during periods of inactivity. A quarry in the second layer has exposed radiating columns of basalt whose tiny steam cavities are filled with aragonite, calcite, agate, chalcedony and siderite.

After lunch at the Falls we travelled to a locality near Spring Hill where the lava had flowed over wet ground, resulting in the formation of a volcanic glass called tachylyte. The incredibly sharp edges of this rock were so valued by Aborigines that it was traded all over Victoria and into NSW. Xenoliths found here might have come from considerable depth and be Pre-Cambrian in age.

At Spring Hill the lava had solidified to form a trachy-andesite, a rock more siliceous than basalt and therefore paler - grey with mottled lighter patches and very fine-grained. The cavities this time were filled with high temperature secondary minerals including rutile, magnetite and amphiboles.

The final stop was made at Lyonville Mineral Springs where some members tasted the waters - a distinctive taste not to everyone's liking! During volcanic periods groundwater has percolated through the underlying Ordovician slates and now contained dissolved sulphide minerals and iron carbonates. This region has one of the highest levels of background radiation in Australia thanks to the production of radon gas from decaying radioactive minerals.

In the creek we were shown where to find promising paydirt and sieved and panned for zircons - tiny translucent red crystals whose natural shapes had been abraded by the lava in which they found themselves, or by the action of running water once they had been released from the rock.

Most of us returned home with a geological treasure trove - must label these specimens quickly before we forget what they are! Dr. Hollis' enthusiasm for his subject was infectious and gave us new insight into a landscape we have often passed through but not fully understood.

Carol Hall

SING A SONG OF ACCENTS

IF anyone told you birds had regional accents you'd probably tell them to go whistle.

But it's true. Observers say bird calls of the same species vary not only from state to state but sometimes only 20km apart.

And some birds of the same species can add an identifying characteristic to distinguish themselves when calling a neighbor.

"The willie wagtail in Melbourne gardens has such a distinctly different dialect you'd hardly recognise it in Papua New Guinea," Ellen McCulloch, of the Bird Observers of Australia, said yesterday.

She said the call of the magpie lark (also known as mudlark and peewee) varied markedly between Melbourne and the mid-north coast of New South Wales.

Other Victorian birds with different calls in other parts of Australia include the white-plumed honeyeater, cuckoo, nightjar, raven and brown thornbill.

Researchers tracing the history of Australia's rainforests say bird calls vary from one mountain top to another.

Queenslander Dr David Westcott said bird calls were a learned trait, a cultural attribute that birds, who were great mimics, learned from their own community.

- DOUG BUTTON

Herald Sun 24-6-1999

STUDY SOUNDS OFF ON SEA LIFE.

LOS ANGELES — Noise from supertankers, oil exploration and new military sonar equipment scrambles the communication systems of sea life, forcing changes in migration routes and breeding grounds, a report warns.

"We're playing Russian roulette with our oceans and we can't afford to do that," said Joel Reynolds, senior lawyer with the Natural Resources Defence Council, the environmental group responsible for the report.

The study says underwater noise pollution could alter the ocean habitat. It calls for a closer look at how noise affects sea creatures, as well as stiffer regulations to protect them.

Roger Gentry, acoustics team coordinator with the National Marine Fisheries Service, said: "It is a serious problem. The problem is, we don't know how serious it is."

He said the report was a pretty fair summary of the issues that acoustics experts in government, the military, academia and the environmental movement had struggled with as they assessed how noise affected sea life.

The study pinpoints the Channel Islands, the seas off San Francisco and LA, and Monterey and San Diego bays as having high levels of underwater noise coupled with abundant sea life.

In dark sea waters, mammals such as whales and dolphins appear to use their hearing — much as humans use sight — to seek food, find mates, guard their young and avoid predators.

- AP

From the Herald Sun 29-6-1999.

Articles submitted by Bob Curtain

POSER UPDATE

Right Theory ... Wrong Species!?!... And Clever Nature! For some time now I have been suggesting that maybe the change of wren plumage colour, in the transition from juvenile to adult male, could be due to structural change in the feathers rather than moulting. Apart from Ken McDonnell, who kindly lent me a bird book with a chapter about feathers, I have had no feedback from other members --- apart from bewildered looks! I bought the issue back to light with the Aug'99 poser and in the September solution explained how many plumage colours are produced by constructive interference of light rays reflected from adjacent surfaces within the feathers. The colour produced depends on the distance between reflecting surfaces and a colour change would result from a change in the distance

p5

between the reflecting surfaces...and this would presumably be much more energy efficient than moulting and therefor nature's preferred option.

When Ken Kraaijeveld told me that his supervisor had conducted an extensive study of wrens I quickly told him about my ideas and he quickly replied that captured birds had been checked and birds in transition were in fact moulting! ... But, sensing my disappointment he quickly added that some birds do change colour via structural change of the feathers! For instance the black (or more probably UV) bib of adult male house sparrows results from the thinning of the surface layer of the bib feathers! Also the black feathers in male wrens are in fact UV

If you are wondering why the blue feathers of wrens are so bright it is probably due to the fact that in the interference process the amplitude of the light waves are doubled (see Sept'99) and basic physics tells us that if the amplitude of a wave is doubled its effective energy is quadrupled. If you are wondering why UV is emerging as being so common and important in display plumage, its probably because UV is the highest energy light that is visible to birds.

And hasn't nature been clever... its used interference to enhance the brightness of the highest energy light for the activity which is so often considered the most important thing for all living organisms - attracting the opposite sex! BDA

DECEMBER POSER

Elfin trusts that you have all worked out the solution to his posers, but for retribution Margaret Rotheram asked Elfin, "but why did the butterfly?....Because the bell miner made a dingo!" BDA

FEBRUARY POSER

If you have not already done so, I trust you will enjoy the bug puzzle on the front cover and page 7....it is that bug time of year! BDA

-----***----- FNCB -----***-----

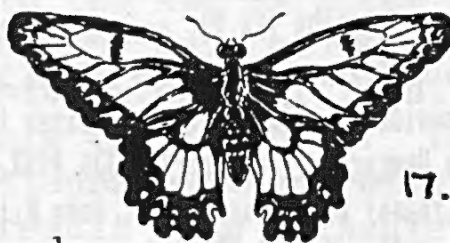
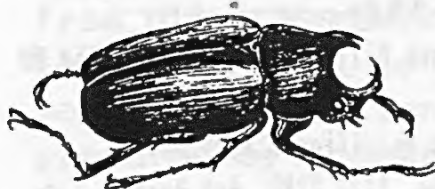
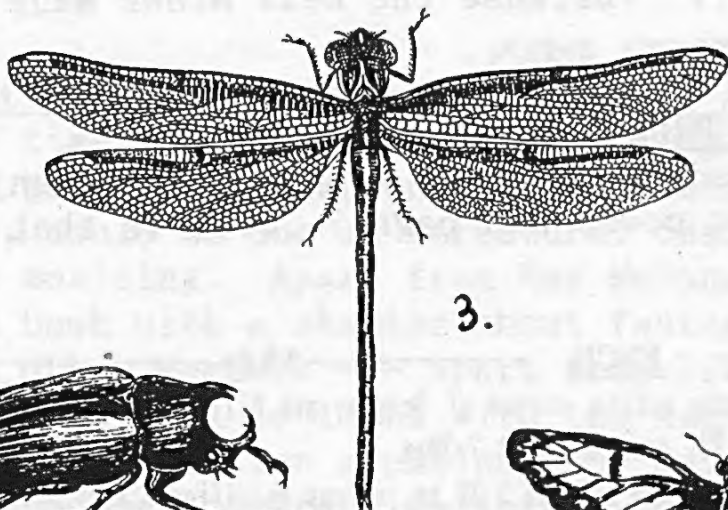
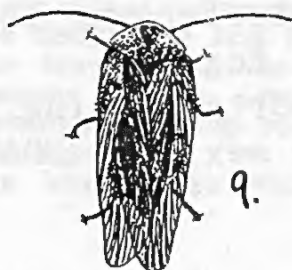
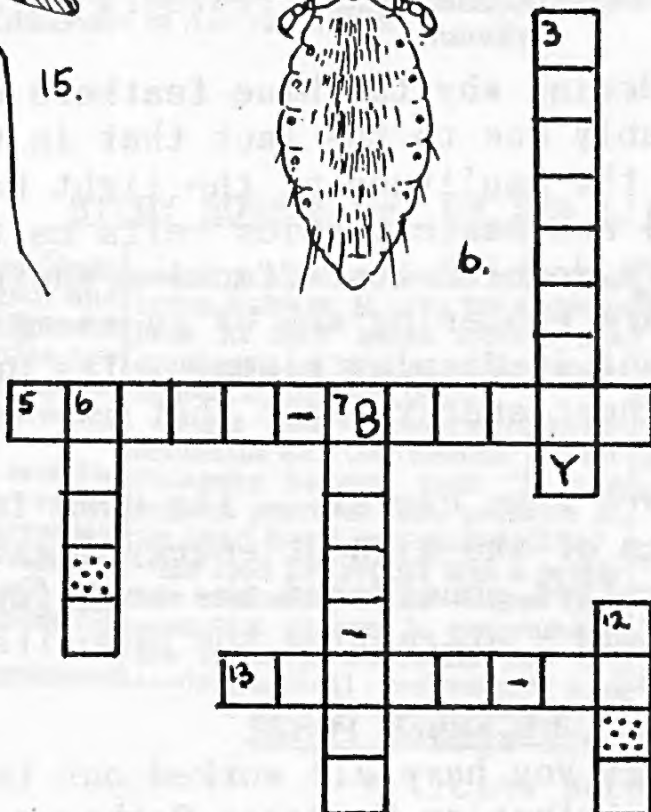
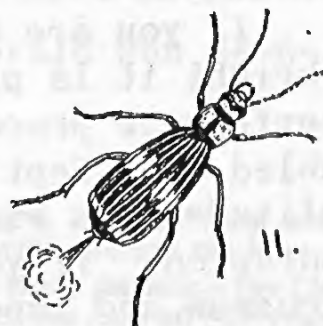
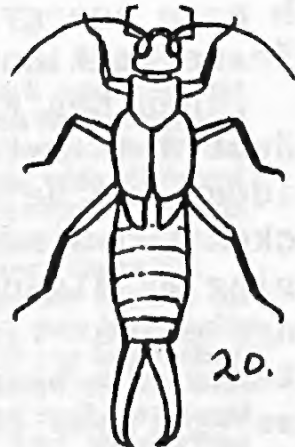
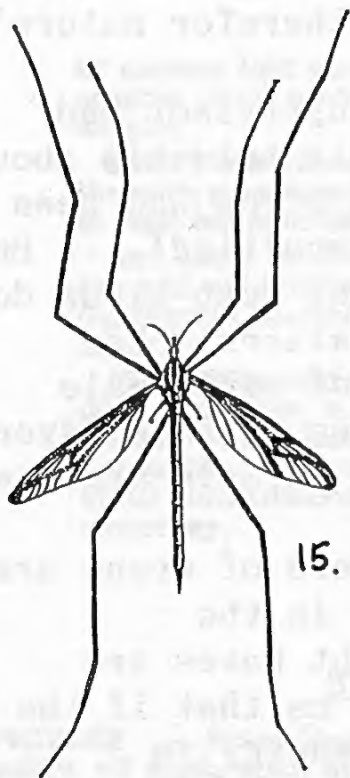
Meetings are held at the Ballarat Horticulture centre, corner of Gregory and Gillies Streets, ie. the NW corner of the Botanic Gardens, VICROADS 254 P8, commencing at 7-30pm

Excursions depart from Creswick Plaza, VICROADS 255 M10, at 9-30 am, unless specified otherwise.

Committee: Claire Dalman (President).. , Greg Binns (Vice President).. , Pat Murphy (Secretary).. , John Gregurke (Treasurer).. , Brian Andrews (Editor).. , Helen Burgess, Maureen Christie, Lyndsay Fink, Carol Hall, John Mildren.

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From: MASS, T.W.O.N.
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